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Health Quality & Safety Commission Surgical Safety Culture Survey Research Report 2019

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RESEARCH & STRATEGY

Contents

1: Executive summary

1.1 Background and objectives

The Health Quality & Safety Commission (**the Commission**) is a stand-alone Crown Entity that has a primary role of assisting private and public providers across the health and disability sector improve service safety and quality. Since 2012 the Commission has had a goal of reducing perioperative harm caused by adverse events and other errors that take place during the perioperative period.

The Commission has been rolling out a package/suite of evidence-based teamwork and communications-based interventions to district health boards (DHBs) and private surgical providers since 2011. The World Health Organization Surgical Safety Checklist **(the checklist)** was introduced first; initially in a paper format then modified to be used in a paperless form, as a poster on the operating theatre wall (for each surgery). Start-of-list briefing and End-of-list debriefing was added as areas of focus in 2015.

As part of the overall monitoring and evaluation of the programme, the Commission conducted a Surgical Safety Culture Survey across DHBs in order to provide baseline data regarding patient safety and the quality of teamwork in operating theatres. This survey was conducted and reported on during late 2015. The survey was a modified version of a Surgical Safety Culture Survey developed by the Harvard School of Public Health, with amendments around language differences only. Permission was given by the Harvard School of Public Health for the Commission to use the survey.

In 2017 the Commission conducted a second iteration of the Surgical Safety Culture Survey to assist in further evaluation of the programme. The survey tool utilised for this second iteration was the same tool that was used for the first with only some minor changes to the demographic questions. No changes were made to any of the measurement questions.

A third iteration of the Surgical Safety Culture Survey was conducted in 2019. This report presents the results of the 2019 survey.

1.2 Research approach

This research was conducted as an online survey. A total of **N=1038** surgical team members answered some or all of the survey (N=1045 in 2017 and N=972 in 2015), although not all substantively completed a survey. A total of **N=888** were considered to have completed enough questions to contribute to the overall data set (N=883 in 2017 and N=843 in 2015). These were people who answered **at least some** of the core measurement questions. A total of **N=799** fully completed the survey (N=789 in 2017 and N=756 in 2015).

1.3 Research findings

The Harvard team identified four overarching dimensions as part of their conceptual framework for their study:

1. Contextual (readiness to undertake the initiative) – includes experience implementing similar innovations (i.e. the checklist), staff attitudes towards the innovation, belief that it is important for patient safety and the cooperation among multiple disciplines
2. Interpersonal (which recognises the need to foster effective teamwork through communications, coordination, respect, assertiveness and clinical leadership)
3. Practical (adherence) - the extent to which surgical team members adhere to established safety practices in the operating room
4. Consequential – which measures the perceived impact of the innovation on surgical outcomes as perceived by team members.

The results have been encouraging overall across the three survey iterations, with 20 out of 35 measures showing statistically significant improvements between 2015 and 2019. Agreement with one measure decreased, with the remainder (14 measures) remaining steady.

1.3.1 Summary of key findings 2017-2019

Results were more likely to remain steady between 2017 and 2019, compared with the initial improvements that were recorded between 2015 and 2017. Measures that statistically significantly improved over the last two years (2017-2019) were:

Team discussions (briefings and debriefings are common)	+11% (2015-2017, +20%)	**Communication**
Post-operative debriefings always include a discussion of key concerns for patient recovery and post-op management	+9% (2015-2017, 8%)	**Practical (adherence)**
The Time Out is used in every case by every surgical team	+8% (2015-2017, 0%)	**Contextual (readiness)**
Surgical team members all agree on the importance of using checklists in every surgery	+7% (2015-2017, -1%)	**Contextual (readiness)**
Surgical teams always discuss the operative plan (i.e. more than the location of the incision and name of procedure) before incision	+5% (2015-2017, +15%)	**Practical (adherence)**
If I were having an operation, I would want a surgical safety checklist to be used	+3% (2015-2017, -2%)	**Consequential (other items)**

Over the last two years however, the level of agreement for the following two measures decreased:

I would feel safe being treated here as a patient	-4% (2015-2017, +2%)	**Consequential (other items)**
Surgical team members refer to each other by their name not their role	-3% (2015-2017, +3%)	**Practical (adherence).**

The themes in the open-ended comments remained consistent with those recorded in 2015 and in 2017, although there were more positive comments than in previous years. Core themes in suggestions continued to be to do with:

- Inconsistency in attitudes of some surgical staff with respect to their buy-in to the Surgical Safety Checklist and Time Out
- Debriefings not taking place
- Process-related issues including to do with the Checklists
- Internal DHB pressures and timeframes
- Distractions during Time Outs, and
- Team culture issues.

1.3.2 Summary of key findings 2015-2019 (across the three survey iterations)

Statistically significant improvements **between 2015 and 2019** were:

Team discussions (briefings and debriefings are common)	+31%	**Communication**
Surgical teams always discuss the operative plan (i.e. more than the location of the incision and name of procedure) before incision	+20%	**Practical (adherence)**
Post-operative debriefings always include a discussion of key concerns for patient recovery and post-op management	+17%	**Practical (adherence)**
For complex patients or cases, perioperative briefings always include planning for potential problems (+16%)	+16%	**Practical (adherence)**
Surgical team members from different disciplines always discuss patients' conditions and the progress of operations	+14%	**Coordination**

Physicians maintain a positive tone throughout operations	+12%	**Clinical Leadership**
Surgical team members share key information as it becomes available	+9%	**Communication**
Surgical team members make sure their comments or instructions are heard	+9%	**Communication**
Surgical team members appear eager to help one another	+9%	**Coordination**
Equipment issues or other problems discussed in post-operative debriefings are addressed in a timely manner	+9%	**Practical (adherence)**
The Time Out is using in every case by every surgical team	+8%	**Contextual (readiness)**
Potential errors or mistakes are pointed out without raised voices or condescending remarks	+8%	**Respect**
The Time Out was not difficult to implement	+7%	**Contextual (readiness)**
Surgical team members all agree on the importance of using checklists in every surgery	+6%	**Contextual (readiness)**
Physicians and nurses work together as a well-coordinated team	+6%	**Coordination**
My input about patient care is well received by other team members	+6%	**Respect**
Surgical team members communicate with me in a respectful manner	+5%	**Respect**
Not difficult to speak up when I perceive a problem with patient care	+5%	**Assertiveness**
Physicians are present and actively participating in patient care prior to skin incision	+5%	**Clinical Leadership**
Disagree that communication breakdowns frequently lead to delays in starting surgical procedures	+5%	**Additional**

There has been a statistically significant decrease however in the result for the following measure:

- Physicians not just open to suggestions from other physicians (-9%) **– Clinical Leadership**

Comparing all measures, the following are at the lowest levels overall – although all have improved since 2015.

- Equipment issues or other problems discussed in post-op debriefings are addressed in a timely manner (61% - but an improvement from 52% (+9%) since 2015) **– Practical (adherence)**
- Surgical team members from different disciplines always discuss patients' conditions and the progress of operations (54% - but an improvement from 40% (+14%) since 2015) **– Coordination**
- Physicians maintain a positive tone throughout operations (54% - but an improvement from 42% (+12%) since 2015) **– Clinical Leadership**

2: Project background and objectives

The Health Quality & Safety Commission (**the Commission**) is a stand-alone Crown Entity that has a primary role of assisting private and public providers across the health and disability sector improve service safety and quality. Since 2012 the Commission has had a goal of reducing perioperative harm caused by adverse events and other errors that take place during the perioperative period.

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As part of the overall monitoring and evaluation of the programme, the Commission conducted a Surgical Safety Culture Survey across DHBs in order to provide baseline data regarding patient safety and the quality of teamwork in operating theatres. This survey was conducted and reported on during late 2015. The survey was a modified version of a Surgical Safety Culture Survey developed by the Harvard School of Public Health, with amendments around language differences only. Permission was given by the Harvard School of Public Health for the Commission to use the survey.

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A third iteration of the Surgical Safety Culture Survey was conducted in 2019. This report presents the results of the 2019 survey.

3: Research approach

This research was conducted as an online survey. A total of **N=1038** surgical team members answered some or all of the survey (N=1045 in 2017 and N=972 in 2015), although not all substantively completed a survey. A total of **N=888** were considered to have completed enough questions to contribute to the overall data set (N=883 in 2017 and N=843 in 2015). These were people who answered **at least some** of the core measurement questions. A total of **N=799** fully completed the survey (N=789 in 2017 and N=756 in 2015).

The table below shows the number of participants who fully completed a survey, by role – and relative to the total number of potential participants within each segment in New Zealand. Note however, that not all potential participants were invited by their DHB to complete a survey. Therefore the response rate shown is under-estimated based on the number of responses relative to those who were actually sent a survey. There were also a segment of participants who identified their role as 'other'. These included: House Officer, Nurse Educator, OBGYN, Theatre Radiographer, RN Surgical Assistant etc. It was not always made clear which specific 'role' participants here were in (i.e. nurse, surgeon etc.).

Table 1: Estimated response rate

Role	Total NZ	Participants N	2019 Response rate
Surgeons	882	200**	23%
Anaesthetists	816	199**	24%
Anaesthetic technicians	786	95	12%
Theatre nurses	3755	229	6%
Other	-	76	-
Response rate* **	**6239**	**799**	**13%**

* Includes Consultant Surgeons (n=143) and Surgical Registrars/Fellows (n=57)
** Includes Consultant Anaesthetist (n=177) and Anaesthetist Registrar/Fellow (n=22)
*** Note: not all potential participants received a survey invitation so the response rate is under-estimated. The number of responses is fully completed surveys only.

3.1 Research process

For the 2019 survey, contact was made with Safe Surgery Champions (who were nominated by their DHBs for this role) across all New Zealand DHBs by a director of Mobius, requesting their assistance in sending the survey to all members of their surgical teams.

Contact was made initially by telephone to Safe Surgery Champions, followed by an email, detailing the process and timeframes. Further telephone and email contact was made - to update people on the process and also to follow-up once the survey and email link had been sent. A prize draw was offered for all surgical team members taking part, as an incentive to encourage a high response rate.

All DHBs agreed to take part. However, due to a significant event in the Christchurch area during the time the survey was open, Canterbury DHB was not able to participate.

3.1.2 Participating DHBs and sample sizes

These results represent partial (where participants were considered to have completed enough questions to contribute to the overall data set) and fully completed surveys. The total number of **unique** partial and fully completed surveys was N=888.

Table 2: DHB responses

DHB	N			Percentage of total sample		
	2019	2017	2015	2019	2017	2015
Northland	37	39	2	4%	4%	<1%
Auckland	159	108	111	18%	12%	14%
Waitematā	92	29	110	10%	3%	14%
Counties Manukau	102	58	100	11%	6%	13%
Waikato	145	88	169	16%	10%	22%
Bay of Plenty	25	49	50	3%	5%	6%
Lakes	23	15	3	3%	2%	<1%
Tairāwhiti	12	9	10	1%	1%	1%
Hawke's Bay	38	20	5	4%	2%	1%
Taranaki	29	51	30	3%	6%	4%
Whanganui	12	24	5	1%	3%	1%
MidCentral	19	26	1	2%	3%	<1%
Capital & Coast	58	139	9	6%	15%	1%
Hutt Valley	33	30	2	4%	3%	<1%
Wairarapa	11	17	20	1%	2%	3%
Nelson Marlborough	23	55	12	3%	6%	2%
West Coast	13	8	6	15	1%	1%
Canterbury	0	75	65	0%**	8%	8%
South Canterbury	7	6	0	15%	1%	<1%
Southern	62	51	73	7%	6%	9%
Total	**900***	**897***	**783***	**100**	**100**	**100**

* Note that some participants selected more than one DHB when asked "which of the following DHBs are you currently working for" at the beginning of the survey.
** Canterbury DHB was unable to take part due to a significant event in the region during the time the survey was open.

3.2 Survey design

The survey was a close replication of the Surgical Safety Culture Survey developed by Sara Singer and colleagues at the Harvard School of Public Health.[1] Some small wording changes were made for the New Zealand context in 2015 and some minor changes were made to the demographics questions in 2017. No further changes were made to any of the questions in 2019.

There was one open-ended question for any additional comments or feedback.

3.3 Piloting

The survey wording and structure was piloted in 2015 with a small number of surgical team members and no specific changes were identified. There was no further piloting in 2017 and 2019.

Use of the word physician

The word **'physician'** (a descriptor used in the Harvard survey) was retained in the New Zealand survey after the initial piloting. While 'physician' is not a term that is typically used for surgeons or doctors in general in New Zealand, none of the pilot participants in 2015 identified this terminology as confusing or problematic. The term physician in this survey is used to refer to **any surgeon or anaesthetist**.

[1] Original survey available at http://www.safesurgery2015.org/uploads/1/0/9/0/1010835/2p - surgical_safety_culture_ survey_2011_0603_final.pdf

3.4 Data analysis

As in 2015 and 2017, analysis of the core measurement questions in 2019 was based around the analysis conducted by the Harvard team[2]. For analysis purposes, the Harvard team grouped the measurement questions as follows. These four overarching dimensions were deemed by the Harvard team to be of greatest interest in the surgical environment and more feasible to obtain by other forms of data collection.

1. Contextual (readiness)
2. Interpersonal (teamwork)
    a. Factor 1: Communications
    b. Factor 2: Coordination
    c. Factor 3: Respect
    d. Factor 4: Assertiveness
    e. Factor 5: Clinical Leadership (refers to medical leadership – i.e. leadership from senior medical team members: surgeons and anaesthetists)
3. Practical (adherence)
4. Consequential (other items).

There were four additional questions included in both the Harvard and the New Zealand survey, which were not analysed as part of these four dimensions. The results of these are presented separately in this report.

Results were analysed (by these sections) overall and then also presented by DHB. A cross tabular analysis was conducted by gender, ethnicity, primary role of participant and the number of years working in this role at any hospital. Significance testing was carried out using the 2-tailed z test at the 95% confidence level.

3.5 Research limitations

The limitations of this research remain unchanged since 2017 and results should be viewed in the context of these. Once again, Mobius Research did not have any control over who (specifically, the number of surgical team members) the survey was sent to. While every attempt was made to ensure that Safe Surgery Champions understood the need to, and emailed the survey link to all surgical team members, most but not all did this. Because we did not hold the database information we were unable to identify via our survey software who had and had not completed a survey. Typically, if we hold the database information and send surveys out directly, we are able to identify people who have not yet started a survey or have started but not completed a survey, and send reminders out to those people specifically. For this survey we could only ask that Safe Surgery Champions send out reminders on our behalf (although these would be non-targeted i.e. people who had completed a survey would also receive a reminder).

Because we did not control administration of the databases, we cannot comment on any non-response bias by individual questions (as was done in the analysis conducted for the Harvard survey) i.e. we do not know what the survey response rate was because we do not know how many surveys were sent out.

A further limitation is that some surgical team members, who may be less proactively engaged than other surgical team members with the checklist, may also have been less interested in and less likely to have completed a survey. This *may mean* that the survey results are more positively skewed in terms of the views and attitudes expressed. Furthermore, survey culture surveys in general tend to skew more positively.[3]

A final limitation is that this is a point in time sample rather than a longitudinal study, which means that participants in 2019 will not necessarily be the same participants as in 2015 and 2017.

[2] Surgical Team Member Assessment of the Safety of Surgery Practice in 38 South Carolina Hospitals, Medical Care and Research Review (2015), Sara J Singer et al

[3] 'As with most safety climate surveys (Sexton et. al., 2006; Singer et. al. 2009; Sorra & Nieva, 2012), responses were predominantly positive'

4: Research findings

4.1 Summary of key findings 2017-2019

Results were more likely to remain steady between 2017 and 2019, compared with the initial improvements that were recorded between 2015 and 2017. Measures that were statistically significantly improved over the last two years (2017-2019) were:

Team discussions (briefings and debriefings are common)	+11% (2015-2017, +20%)	**Communication**
Post-operative debriefings always include a discussion of key concerns for patient recovery and post-op management	+9% (2015-2017, 8%)	**Practical (adherence)**
The Time Out is used in every case by every surgical team	+8% (2015-2017, 0%)	**Contextual (readiness)**
Surgical team members all agree on the importance of using checklists in every surgery	+7% (2015-2017, -1%)	**Contextual (readiness)**
Surgical teams always discuss the operative plan (i.e. more than the location of the incision and name of procedure) before incision	+5% (2015-2017, +15%)	**Practical (adherence)**
If I were having an operation, I would want a surgical safety checklist to be used	+3% (2015-2017, -2%)	**Consequential (other items)**

Over the last two years however, the level of agreement for the following two measures decreased:

I would feel safe being treated here as a patient	-4% (2015-2017, +2%)	**Consequential (other items)**
Surgical team members refer to each other by their name not their role	-3% (2015-2017, +3%)	**Practical (adherence).**

The themes in the open-ended comments remained consistent with those recorded in 2015 and 2017, although there were more positive comments than in previous years. Core themes in suggestions continued to be to do with:

- Inconsistency in attitudes towards some surgical staff with respect to their buy-in to the Surgical Safety Checklist and Time Out
- Debriefings not taking place
- Process-related issues including to do with the Checklists
- Internal DHB pressures and timeframes
- Distractions during Time Outs, and
- Team culture issues.

4.2 Summary of key findings 2015-2019 (across the three survey iterations)

The results are encouraging overall across the three survey iterations, with 20 out of 35 measures showing statistically significant improvements. Agreement with one measure decreased, with the remainder (14 measures) remaining steady.

Statistically significant improvements since 2015 (over the three iterations) were:

Team discussions (briefings and debriefings are common)	+31%	**Communication**
Surgical teams always discuss the operative plan (i.e. more than the location of the incision and name of procedure) before incision	+20%	**Practical (adherence)**
Post-operative debriefings always include a discussion of key concerns for patient recovery and post-op management	+17%	**Practical (adherence)**
For complex patients or cases, perioperative briefings always include planning for potential problems (+16%)	+16%	**Practical (adherence)**
Surgical team members from different disciplines always discuss patients' conditions and the progress of operations	+14%	**Coordination**
Physicians maintain a positive tone throughout operations	+12%	**Clinical leadership**
Surgical team members share key information as it becomes available	+9%	**Communication**
Surgical team members make sure their comments or instructions are heard	+9%	**Communication**
Surgical team members appear eager to help one another	+9%	**Coordination**
Equipment issues or other problems discussed in post-operative debriefings are addressed in a timely manner	+9%	**Practical (adherence)**
The Time Out is using in every case by every surgical team	+8%	**Contextual (readiness)**
Potential errors or mistakes are pointed out without raised voices or condescending remarks	+8%	**Respect**
The Time Out was not difficult to implement	+7%	**Contextual (readiness)**
Surgical team members all agree on the importance of using checklists in every surgery	+6%	**Contextual (readiness)**
Physicians and nurses work together as a well-coordinated team	+6%	**Coordination**
My input about patient care is well received by other team members	+6%	**Respect**
Surgical team members communicate with me in a respectful manner	+5%	**Respect**
Not difficult to speak up when I perceive a problem with patient care	+5%	**Assertiveness**
Physicians are present and actively participating in patient care prior to skin incision	+5%	**Clinical leadership**
Disagree that communication breakdowns frequently lead to delays in starting surgical procedures	+5%	**Additional**

There has been a statistically significant decrease in the result for the following measure:

- Physicians not just open to suggestions from other physicians (-9%) **– Clinical leadership**

Across all measures, the following are at lower levels overall – although all have improved since 2015.

- Equipment issues or other problems discussed in post-op debriefings are addresses in a timely manner (61% - but an improvement from 52% (+9%) since 2015) **– Practical (adherence)**
- Surgical team members from different disciplines always discuss patients' conditions and the progress of operations (54% - but an improvement from 40% (+14%) since 2015) **– Coordination**
- Physicians maintain a positive tone throughout operations (54% - but an improvement from 42% (+12%) since 2015) **– Clinical leadership**

Table 3 presents the average agreement score across each of the dimensions and factors. There have been improvements in most of these average scores, with others remaining steady over the three survey iterations, 2015-2019.

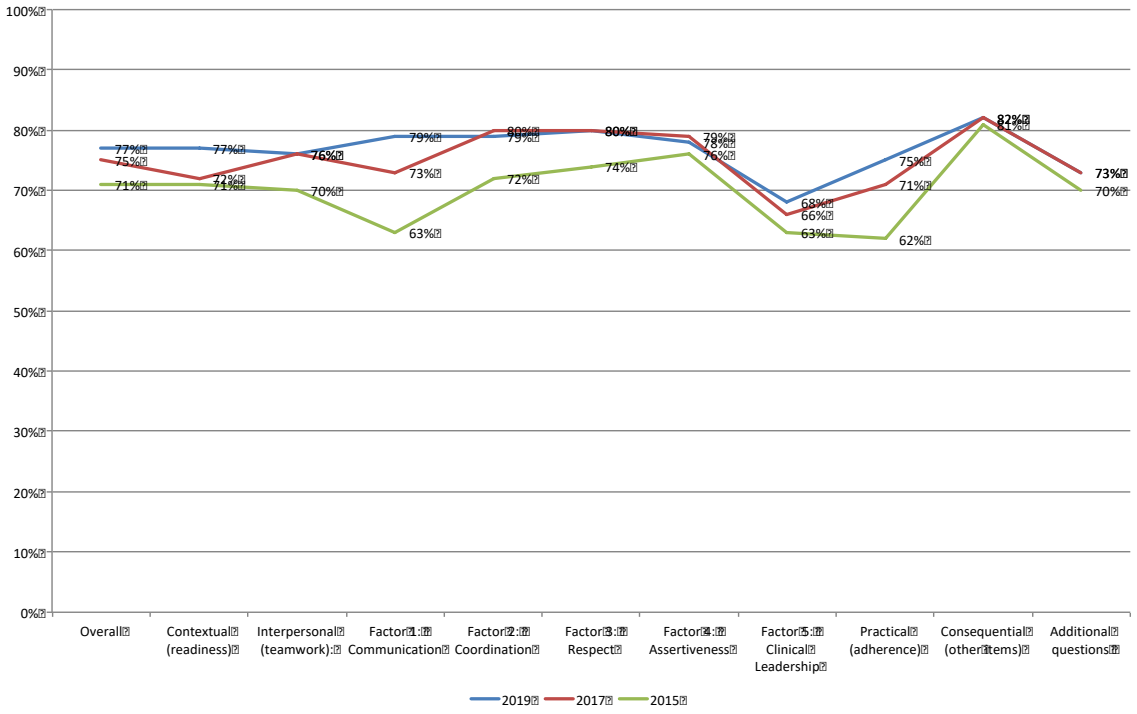
The most significant improvements have been for Factor 1: Communication, under the Interpersonal (teamwork) dimension (+16%), and for the Practical (adherence) dimension (+13%).

Table 3: Average agreement (positive result) overall and by dimension and factor

Survey dimensions/ factors	Average agreement score 2019	Average agreement score* 2017	Average agreement score* 2015	Net % point difference 2015-2019	% Point difference 2017 vs. 2019	% Point difference 2017 vs. 2015
Overall	**77%**	**75%**	**71%**	**+6%**	**+2%**	**+4%**
Contextual (readiness)	**77%**	**72%**	**71%**	**+6%**	**+5%**	**+1%**
Interpersonal (teamwork):	**76%**	**76%**	**70%**	**+6%**	**+0%**	**+6%**
Factor 1: Communication	79%	73%	63%	+16%	+6%	+10%
Factor 2: Coordination	79%	80%	72%	+7%	-1%	+8%
Factor 3: Respect	80%	80%	74%	+6%	+0%	+6%
Factor 4: Assertiveness	78%	79%	76%	-2%	-1%	+3%
Factor 5: Clinical Leadership	66%	66%	63%	+3%	+0%	+3%
Practical (adherence)	**75%**	**71%**	**62%**	**+13%**	**+4%**	**+9%**
Consequential (other items)	**82%**	**82%**	**81%**	**+1%**	**+0%**	**+1%**
Additional questions	**73%**	**73%**	**70%**	**+3%**	**+0%**	**+3%**

* Reflects the positive, all negatively worded responses have been reversed for this calculation.

Average agreement (positive result) overall and by dimension and factor 2015, 2017, 2019



4.3 Survey results by key area

Contextual (readiness)

The first overarching dimension is the Contextual (readiness) dimension. The contextual dimension asks how ready the surgical team is for undertaking the 'initiative'. Readiness includes but is not limited to, experience implementing similar innovations (i.e. the checklist), staff attitudes towards the innovation, belief that it is important for patient safety and the cooperation among multiple disciplines.

Table 4: Contextual (readiness) - summary of key findings 2015-2019

There were no significant shifts in any of the Contextual (readiness) measures between 2015 and 2017. However, there have been statistically significant improvements in the last two years for the Time Out being used in every case by every surgical team and surgical team members all agreeing on the importance of using checklists.

As in 2015 and 2017, there are still some issues around the buy-in among some surgical team members regarding the importance of using checklists, although this measure has improved since 2017 (after no change between 2015 and 2017). Feedback from the open-ended question in the survey suggests that it is *some* surgeons who are less open to use of the surgical safety checklist.

Measure	2019 % Agree or Positive	2017 % Agree or Positive	2015 % Agree or Positive	Net % point difference 2015-2019	% Point difference 2017 vs. 2019	% Point difference 2017 vs. 2015
The 'Time Out' is used in every case by every surgical team	92%	84%	84%	+8%*	+8%*	+0%
Checklist implementation is not only limited to one profession	79%	77%	76%	+3%	+2%	+1%
Surgical team members all agree on the importance of using checklists in every surgery	75%	68%	69%	+6%*	+7%*	-1%
The 'Time Out' was not difficult to implement	72%	68%	65%	+7%*	+4%	+3%
Surgical team members are open to changes that improve patient safety even if it means slowing down	66%	62%	62%	+4%	+4%	+0%

*Statistically significant difference

Contextual (readiness) 2015-2019

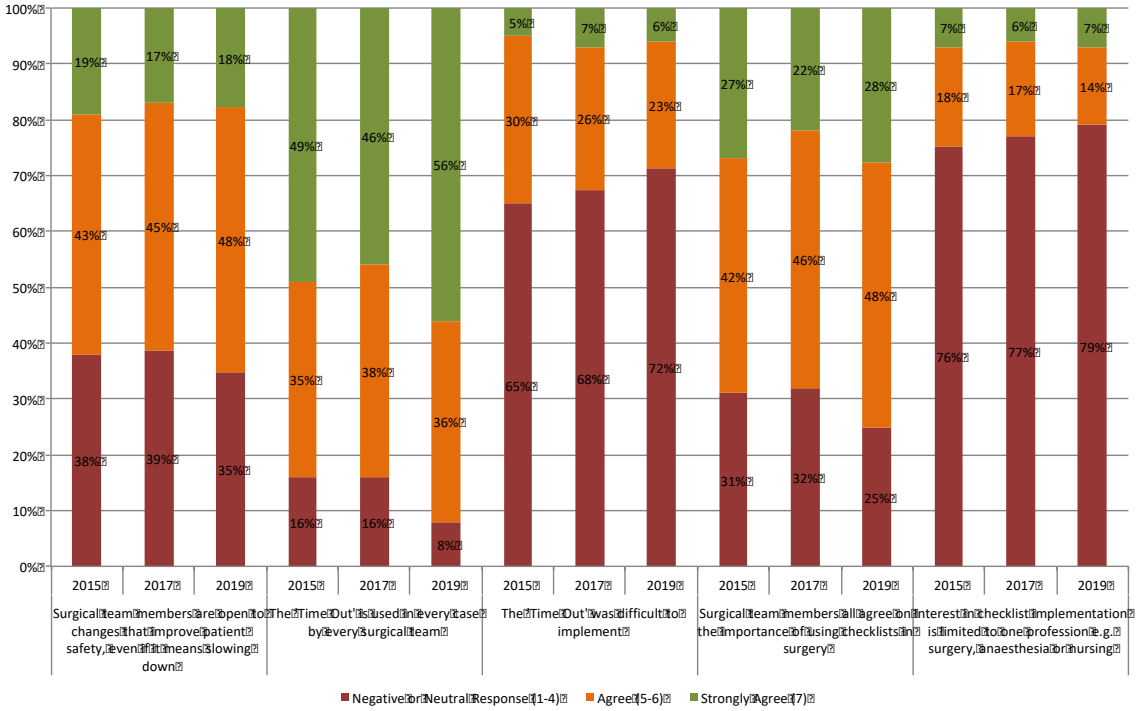


Table 5: Summary of positive, neutral and negative responses

Measure	2019 % Agree or Positive	2019 % Neutral	2019 % Negative
The 'Time Out' is used in every case by every surgical team	92%	3%	5%
Checklist implementation is not only limited to one profession	79%	13%	8%
Surgical team members all agree on the importance of using checklists in every surgery	75%	13%	12%
The 'Time Out' was not difficult to implement	72%	14%	14%
Surgical team members are open to changes that improve patient safety even if it means slowing down	66%	15%	19%

Interpersonal (teamwork)

The second dimension is the interpersonal dimension. The interpersonal dimension recognises that implementing innovations, such as surgical safety checklists, requires complex social and behaviour changes that challenge the status quo. Surgical checklists encourage non-hierarchical, team-based interaction, enhanced communication, anticipation of potential complications, and the means for responding to them. In short, they aim to foster effective teamwork. Building on previous models of teamwork the Harvard team defined five measurable interpersonal factors that may affect and be affected by surgical innovations: communication, coordination, respect, assertiveness, and clinical leadership. Communication refers to how well team members share information and listen; coordination addresses how well they work together; respect refers to whether team members feel valued and appreciated; assertiveness addresses the extent to which it is easy for team members to speak up, ask for help, or discuss mistakes; and clinical leadership asks whether the physicians on the team - surgeons and anaesthetists - are seen as good leaders.

Factor 1: Communication

There has been a statistically significant improvement with respect to team discussions being common since 2017. This measure has also had the largest improvement across the three survey iterations. Feedback from the open-ended questions suggests however that debriefings are still less common than briefings.

Table 6: Communication – summary of key findings 2015-2019

Measure	2019 % Agree or Positive	2017 % Agree or Positive	2015 % Agree or Positive	Net % point difference 2015-2019	% Point difference 2017 vs. 2019	% Point difference 2017 vs. 2015
Team discussions (briefings and debriefings) are common	82%	71%	51%	+31%*	+11%*	+20%
Surgical team members share key information when it becomes available	78%	75%	69%	+9%*	+3%	+6%
Surgical team members make sure their comments or instructions are heard	78%	74%	69%	+9%*	+4%	+5%

*Statistically significant difference

Factor 1: Communication 2015-2019

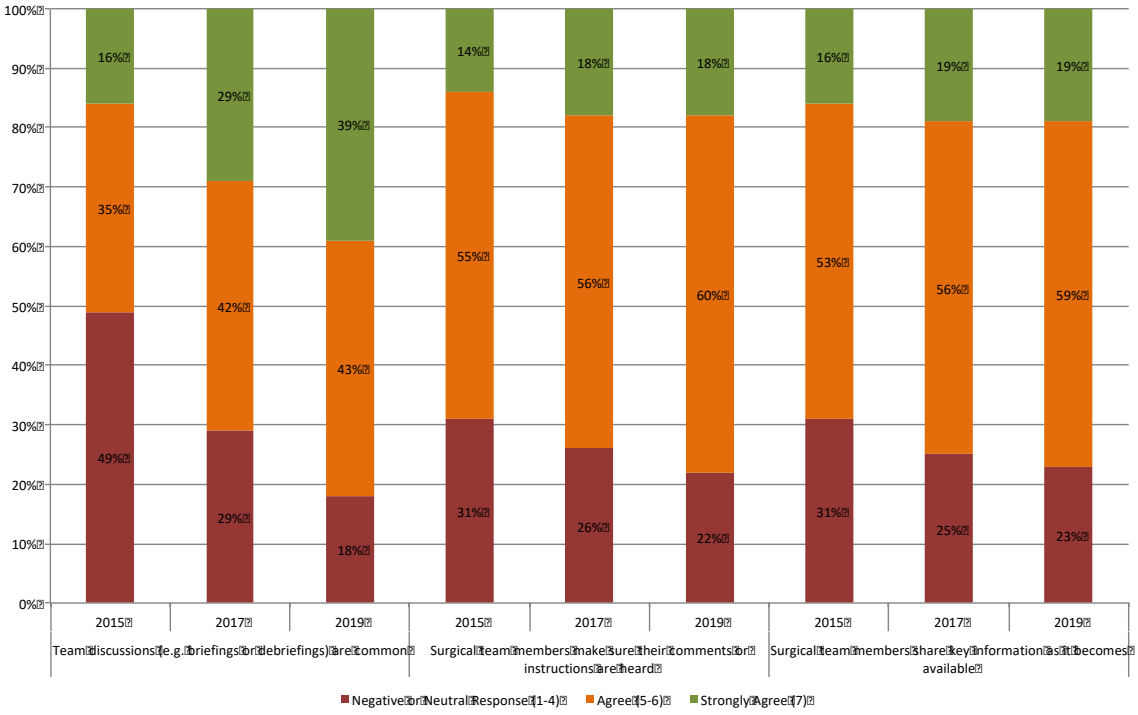


Table 7: Summary of positive, neutral and negative responses

Measure	2019 % Agree or Positive	2019 % Neutral	2019 % Negative
Surgical team members share key information when it becomes available	78%	13%	10%
Surgical team members make sure their comments or instructions are heard	78%	14%	8%
Team discussions (briefings and debriefings) are common	82%	8%	10%

Factor 2: Coordination

There were improvements in the Coordination measures initially, between 2015 and 2017, but no significant differences in results between 2017 and 2019. Surgical team members from different disciplines always discussing patients' conditions and the progress of operations remains the lowest performing measure, with no change in this result over the last two years after an encouraging improvement initially. The open-ended feedback suggests that some survey participants provided lower scores where a question asked about behaviours that 'always' take place.

Other agreement results here are at high levels, including teamwork between different disciplines. There have been significant improvements in three of these measures overall between 2015 and 2019.

Table 8: Coordination – summary of key findings 2015-2019

Measure	2019 % Agree or Positive	2017 % Agree or Positive	2015 % Agree or Positive	Net % point difference 2015-2019	% Point difference 2017 vs. 2019	% Point difference 2017 vs. 2015
Plans for patient care are adapted as needed	91%	92%	88%	+3%	-1%	+4%
Surgeons and anaesthesia providers work together as a well coordinated team	83%	85%	81%	+2%	-2%	+4%
Physicians and nurses work together as a well coordinated team	83%	85%	77%	+6%*	-2%	+8%
Surgical team members appear eager to help one another	84%	82%	75%	+9%*	+2%	+7%
Surgical team members from different disciplines always discuss patients' conditions and the progress of operations	54%	54%	40%	+14%*	+0%	+14%

*Statistically significant difference

Factor 2: Coordination 2015-2019

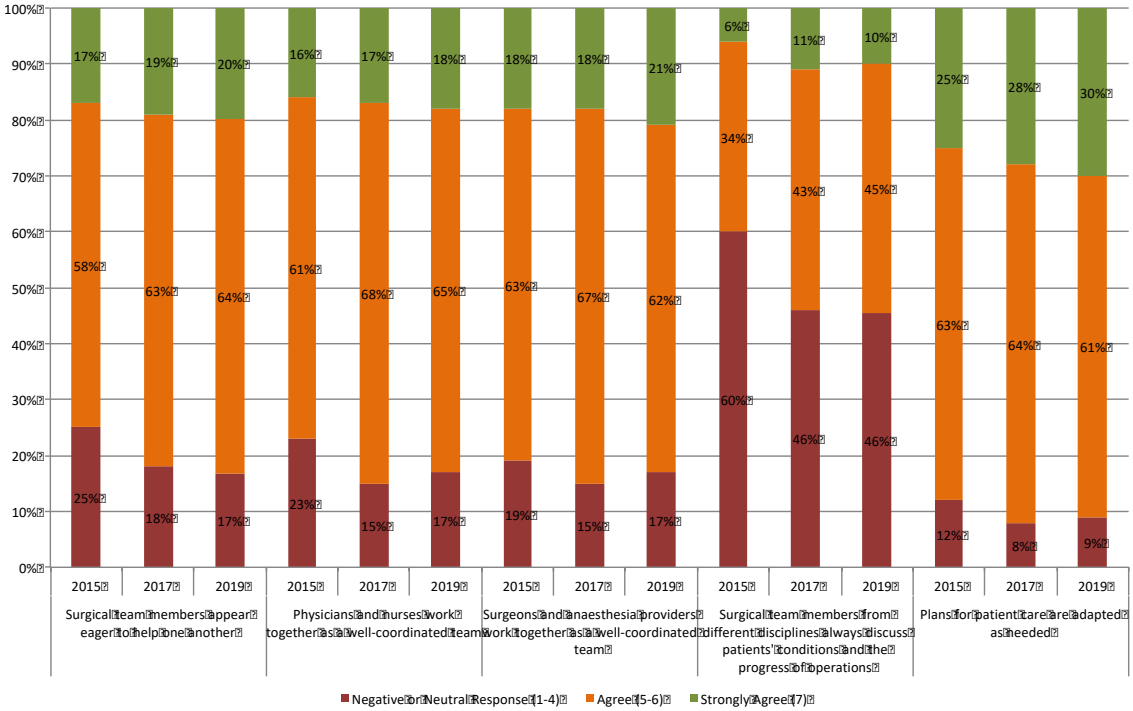


Table 9: Summary of positive, neutral and negative responses

Measure	2019 % Agree or Positive	2019 % Neutral	2019 % Negative
Plans for patient care are adapted as needed	91%	7%	2%
Surgeons and anaesthesia providers work together as a well-coordinated team	83%	10%	7%
Physicians and nurses work together as a well-coordinated team	83%	11%	6%
Surgical team members appear eager to help one another	84%	11%	6%
Surgical team members from different disciplines always discuss patients' conditions and the progress of operations	54%	26%	20%

Factor 3: Respect

There have been no significant improvements in the Respect results over the last two years after positive changes between 2015 and 2017. Agreement results are at relatively high levels overall however although the open-ended feedback suggests that there are still some team culture issues, which are impacting here particularly with respect to the seniority of different roles and ensuing attitudes. Across the three survey iterations however, there have been improvements in each of the Respect measures.

Table 10: Respect – summary of key findings 2015-2019

Measure	2019 % Agree or Positive	2017 % Agree or Positive	2015 % Agree or Positive	Net % point difference 2015-2019	% Point difference 2017 vs. 2019	% Point difference 2017 vs. 2015
My input about patient care is well received by other surgical team members	85%	85%	79%	+6%*	+0%	+6%
I am always treated as a valuable member of the surgical team	81%	81%	77%	+4%	+0%	+4%
Surgical team members communicate with me in a respectful manner	82%	81%	77%	+5%*	+1%	+4%
Potential errors or mistakes are pointed out without raised voices or condescending remarks	73%	72%	65%	+8%*	+1%	+7%

*Statistically significant difference

Factor 3: Respect 2015-2019

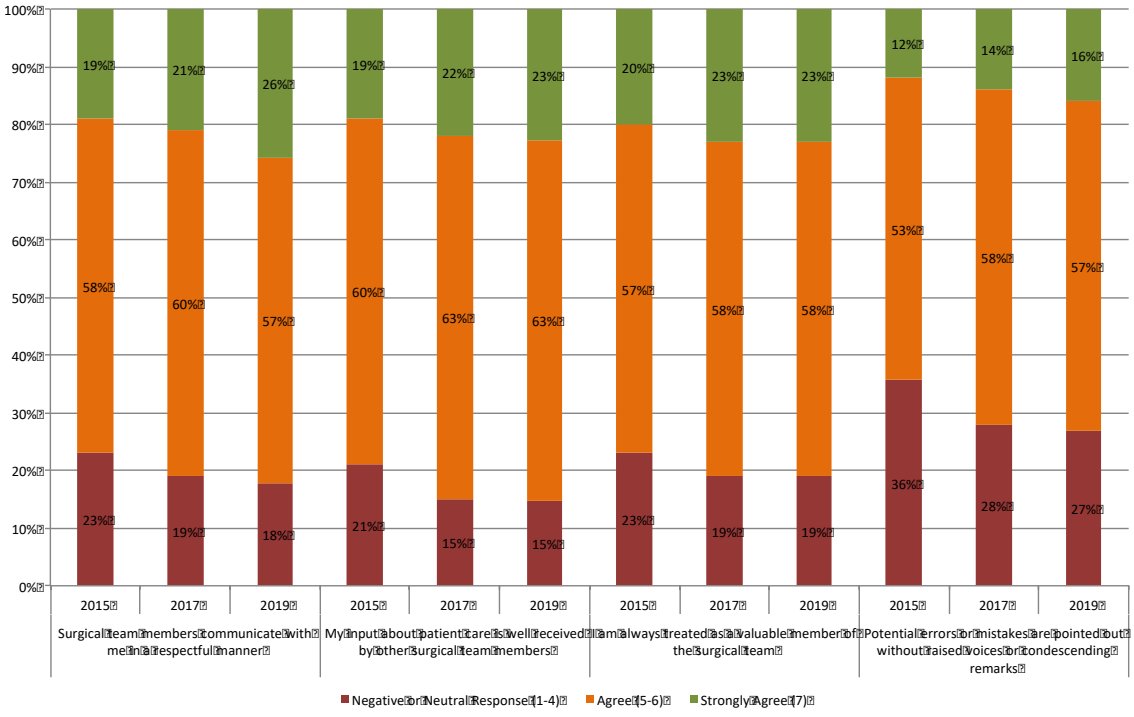


Table 11: Summary of positive, neutral and negative responses

Measure	2019 % Agree or Positive	2019 % Neutral	2019 % Negative
My input about patient care is well received by other surgical team members	85%	9%	6%
I am always treated as a valuable member of the surgical team	81%	10%	9%
Surgical team members communicate with me in a respectful manner	82%	10%	8%
Potential errors or mistakes are pointed out without raised voices or condescending remarks	73%	14%	14%

Factor 4: Assertiveness

There were no significant differences in the Assertiveness results between 2015 and 2017, but there has been an overall improvement across the three survey iterations in the extent to which staff find it easy to speak up if they perceive a problem with patient care. Feeling comfortable discussing medical mistakes continues to be a low performing measure – with 33% of staff providing a neutral or negative agreement score here.

Table 12: Assertiveness – summary of key findings 2015-2019

Measure	2019 % Agree or Positive	2017 % Agree or Positive	2015 % Agree or Positive	Net % point difference 2015-2019	% Point difference 2017 vs. 2019	% Point difference 2017 vs. 2015
Do not think that surgical team members appear to struggle or that they do not want to ask one another for help	85%	87%	85%	+0%	-2%	+2%
Not difficult to speak up when I perceive problems with patient care	82%	80%	77%	+5%*	+2%	+3%
Not difficult to discuss medical mistakes	67%	70%	67%	+0%	-3%	+3%

*Statistically significant difference

Factor 4: Assertiveness 2015-2019

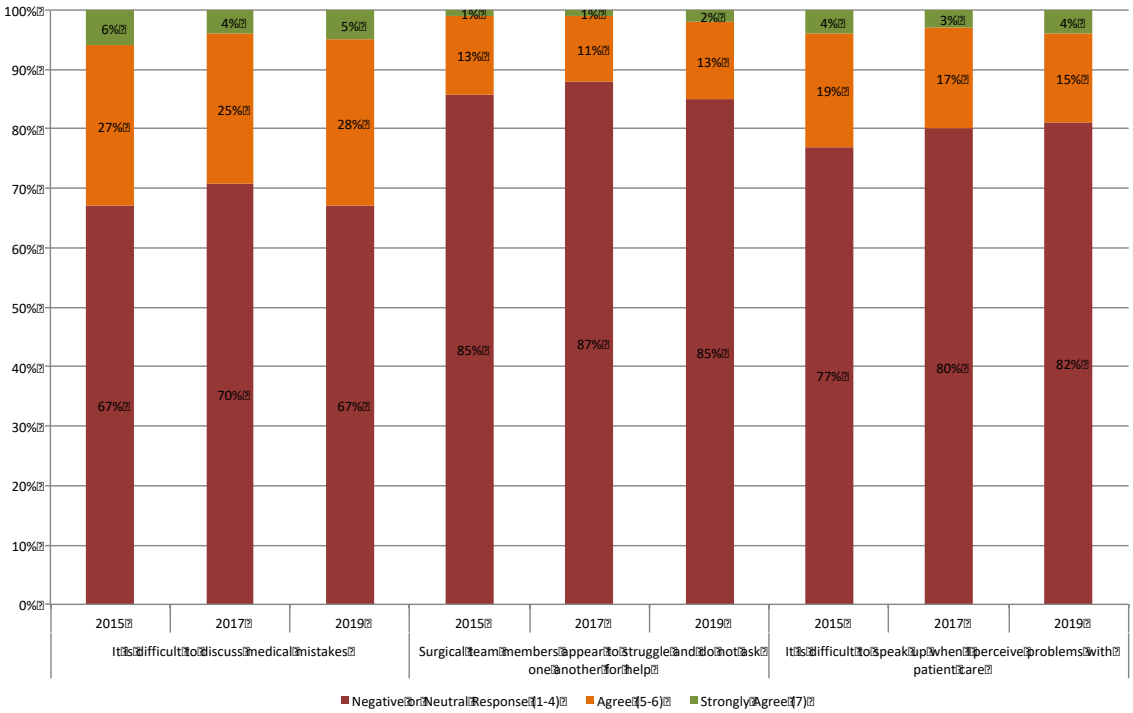


Table 13: Summary of positive, neutral and negative responses

Measure	2019 % Agree or Positive	2019 % Neutral	2019 % Negative
Do not think that surgical team members appear to struggle or that they do not want to ask one another for help	85%	6%	9%
Not difficult to speak up when I perceive problems with patient care	82%	10%	10%
Not difficult to discuss medical mistakes	67%	16%	17%

Factor 5: Clinical leadership

The Clinical Leadership scores have lower levels of agreement compared to many of the other measures in this survey although there have been improvements since 2015 in the extent to which physicians are present and actively participating in patient care prior to skin incision and (in particular) the extent to which physicians maintain a positive tone in operations.

There has been a decrease in the extent to which physicians are open to suggestions from other non-physician team members across the three survey iterations – 46% of staff provided a neutral or negative agreement score for this measure.

Table 14: Clinical leadership – summary of key findings 2015-2019

Measure	2019 % Agree or Positive	2017 % Agree or Positive	2015 % Agree or Positive	Net % point difference 2015-2019	% Point difference 2017 vs. 2019	% Point difference 2017 vs. 2015
Physicians are present and actively participating in patient care prior to skin incision	73%	72%	68%	+5%*	+1%	+4%
Physicians not just open to suggestions from other physicians	70%	71%	79%	-9%*	-1%	-8%
Physicians maintain a positive tone throughout operations	54%	54%	42%	+12%*	+0%	+12%

*Statistically significant difference

Factor 5: Clinical leadership 2015-2019

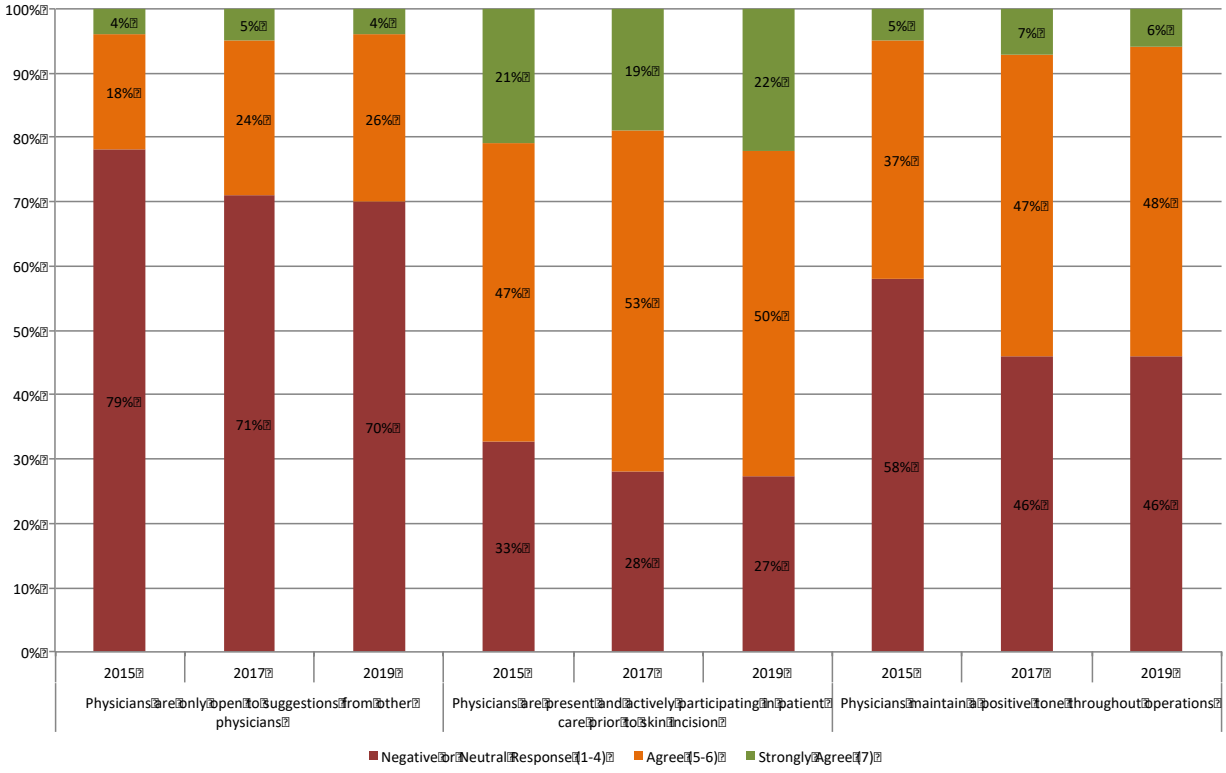


Table 15: Summary of positive, neutral and negative responses

Measure	2019 % Agree or Positive	2019 % Neutral	2019 % Negative
Physicians are present and actively participating in patient care prior to skin incision	73%	13%	14%
Physicians not just open to suggestions from other physicians	70%	17%	12%
Physicians maintain a positive tone throughout operations	54%	24%	22%

Practical (adherence)

The third dimension identified by the Harvard team is the practical dimension; it refers to the extent to which surgical team members adhere to established safety practices in the operating room (e.g., preoperative planning for potential problems and postoperative debriefing on key concerns for patient recovery and management).

Table 16: Practical (adherence) - summary of key findings 2015-2019

There have been further improvements in three of the Practical (adherence) measures since 2017 – always discussing the operative plan, post-operative debriefings always including a discussion of key concerns and equipment or other problems discussed in post-operative debriefings being addressed in a timely manner.

These three measures have lower agreement scores compared to a number of the other measures in this survey, but there have been very encouraging improvements since 2015.

Measure	2019 % Agree or Positive	2017 % Agree or Positive	2015 % Agree or Positive	Net % point difference 2015-2019	% Point difference 2017 vs. 2019	% Point difference 2017 vs. 2015
Surgical team members refer to each other by their name not their role	88%	91%	88%	+0%	-3%*	+3%
For complex patients or cases, preoperative briefings always include planning for potential problems	83%	80%	67%	+16%*	+3%	+13%
Surgical teams always discuss the operative plan (i.e. more than the location of the incision and name of procedure) before incision	72%	67%	52%	+20%*	+5%*	+15%
Postoperative debriefings always include a discussion of key concerns for patient recovery and post-op management	70%	61%	53%	+17%*	+9%*	+8%

Equipment issues or other problems discussed in post-op debriefings are addressed in a timely manner	61%	58%	52%	+9%*	+3%	+6%

*Statistically significant difference

Practical (adherence) 2015-2019

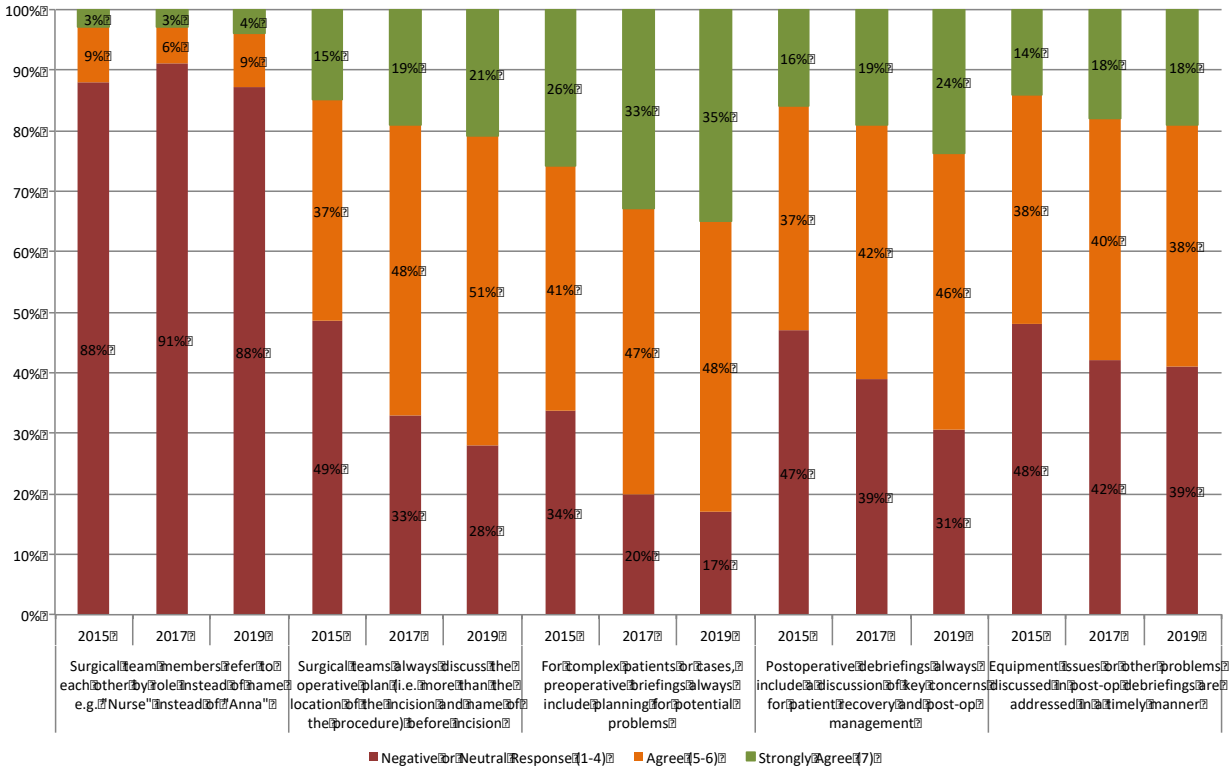


Table 17: Summary of positive, neutral and negative responses

Measure	2019 % Agree or Positive	2019 % Neutral	2019 % Negative
Surgical team members refer to each other by their name not their role	88%	9%	4%
For complex patients or cases, preoperative briefings always include planning for potential problems	83%	8%	9%
Surgical teams always discuss the operative plan (i.e. more than the location of the incision and name of procedure) before incision	72%	14%	14%
Postoperative debriefings always include a discussion of key concerns for patient recovery and post-op management	70%	10%	21%
Equipment issues or other problems discussed in post-op debriefings are addressed in a timely manner	61%	15%	25%

Consequential (other items)

The final dimension identified by the Harvard team is the consequential dimension. The consequential dimension measures perceived impact of the innovation on surgical outcomes as perceived by team members (e.g. how safe team members would feel being treated as patients in their own operating rooms).

Table 18: Consequential (other items) summary of key findings 2015-2019

There has been a small improvement in the extent to which staff feel that pressure to move quickly from case to case can get in the way of patient safety. The other Consequential measures have not changed since 2015 but agreement levels here are high.

Measure	2019 % Agree or Positive	2017 % Agree or Positive	2015 % Agree or Positive	Net % point difference 2015-2019	% Point difference 2017 vs. 2019	% Point difference 2017 vs. 2015
If I were having an operation, I would want a surgical safety checklist to be used	97%	94%	96%	+1%	+3%*	-2%
I would feel safe being treated as a patient	84%	88%	86%	-2%	-4%*	+2%
Disagree that pressure to move quickly from case to case gets in the way of patient safety	66%	65%	62%	+4%	+1%	+3%

*Statistically significant difference

Consequential (other items) 2015-2019

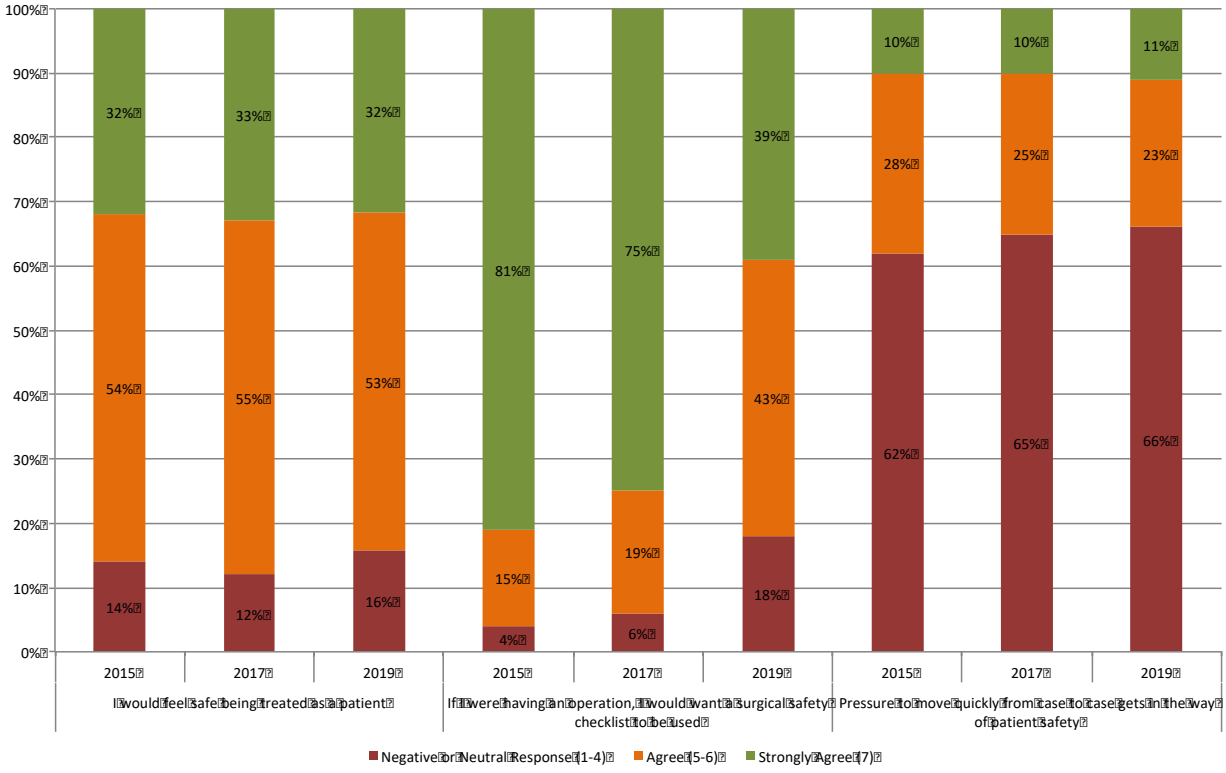


Table 19: Summary of positive, neutral and negative responses

Measure	2019 % Agree or Positive	2019 % Neutral	2019 % Negative
If I were having an operation, I would want a surgical safety checklist to be used	97%	2%	2%
I would feel safe being treated as a patient	84%	9%	7%
Disagree that pressure to move quickly from case to case gets in the way of patient safety	66%	20%	14%

Additional questions

These four additional questions were part of the Harvard study but were not analysed by the Harvard team as part of the four overarching dimensions.

Table 20: Additional questions – summary of key findings 2015-2019

Measure	2019 % Agree or Positive	2017 % Agree or Positive	2015 % Agree or Positive	Net % point difference 2015-2019	% Point difference 2017 vs. 2019	% Point difference 2017 vs. 2015
Decision-making is shared among disciplines in response to patients' conditions or issues that arise during operations	83%	83%	80%	+3%	+0%	+3%
I am encouraged to report any patient safety concerns I may have	81%	80%	82%	-1%	+1%	-2%
Disagreements are resolved with an emphasis not on who is right but what is right for the patient	75%	79%	71%	+4%	-4%	+8%
Disagree that communication breakdowns frequently lead to delays in starting surgical procedures	51%	51%	46%	+5%*	+0%	+5%

*Statistically significant difference

Additional questions 2015-2019

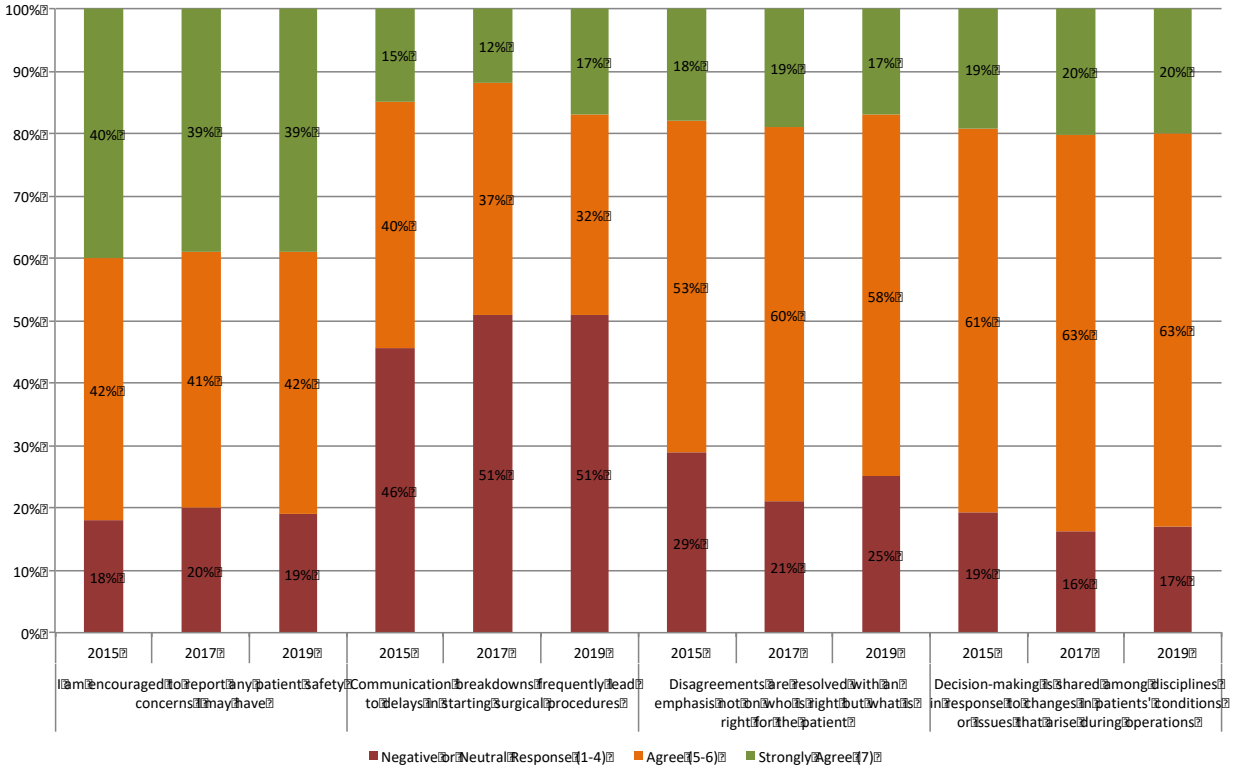


Table 21: Summary of positive, neutral and negative responses

Measure	2019 % Agree or Positive	2019 % Neutral	2019 % Negative
Decision-making is shared among disciplines in response to patients' conditions or issues that arise during operations	83%	11%	6%
I am encouraged to report any patient safety concerns I may have	81%	12%	7%
Disagreements are resolved with an emphasis not on who is right but what is right for the patient	75%	14%	11%
Disagree that communication breakdowns frequently lead to delays in starting surgical procedures	51%	31%	18%

5: Overview of qualitative feedback

One open-ended question was included in this survey. Participants were asked if they had any feedback or comments about any of the topics in the survey. Comments were provided by 168 participants.

There were a number of positive comments made (some of which were mixed in terms of positives and negatives). Examples of positive comments include:

- *Briefing/debriefing has improved teamwork, multidisciplinary communication safety & efficiency in our department* **(Theatre Nurse)**

- *Briefing is done so well but de-briefing not so much. Acknowledgement of good work done by all is well accepted* **(Anaesthetist Technician)**

- *Communication is better since time out procedures were introduced* **(Consultant Anaesthetist)**

- *I am a trained auditor for [ ] DHB this process has improved communication within the disciplines. Work is required for debriefing* **(Theatre Nurse)**

- *I feel that the implementation of the WHO surgical checklists are universal, encouraged, audited and invaluable. Well implemented in our DHB in the theatres but often sub-optimal in remote locations such as radiology bunker, CT and ECT* **(Anaethestist registrar/fellow)**

- *For the most part, the attitude in theatre has greatly improved as a result of less condescension between some surgeons and the nursing team. There is still a concerning lack of support from one charge nurse to their nursing staff. I do feel that the "team" feeling between senior surgical staff and the rest of the team has improved. I feel more able to stand up for myself now* **(Theatre nurse)**

- I work at [ ]. It took a little while to get everyone in the habit of the surgical safety checklist. It has been implemented for some time now, its everyday practice, it works and is a great tool for patient safety **(Anaesthetist technician)**

- *In my experience, introduction of checklists has been a great success, and has improved the surgical experience for all involved. I think the "sign in" is driven by anaesthetists, and is much appreciated by patients; the ""time out"" is initiated by surgeons, and is appreciated by the whole team, and the ""sign out"" is initiated by theatre nurses and is very valuable to discuss and organise post-operative care, and allows the senior surgeon/anaesthetist to be included in the discussion. Without the sign out, post-op care would be picked up by the most junior surgical house-person, sometimes to the detriment of the patient* **(Consultant anaesthetist)**

- *Our teams are starting to work well due to Networkz and we have a very good teamwork culture at [ ]. Staff are supported to speak up and we have started to have more debriefs after events which allows all staff involved to be heard. This has allowed us as a team to learn and improve on our service and sometimes equipment* **(Theatre nurse)**

There was a range of comments that can inform future improvements, which fall into **6 key themes**. These are presented below in order of prevalence. These themes are similar overall to the key themes identified in 2015 and 2017.

Examples of comments under each of these key themes are provided below (a full list of qualitative comments was provided in a separate document):

1. Inconsistency in the attitudes of some surgical staff with respect to their buy-in to the Surgical Safety Checklist and Time-out

- *Working in anaesthesia I often find that not all of the members of the surgical team are engaged with the 'check-in' of the patient led by the anaesthetist* **(Anaesthetist technician)**

- *I have recently moved from a different DHB and have been somewhat dismayed at the real lack of willingness to engage in the surgical safety checklist from some staff* **(Theatre nurse)**

- *Some people embrace and participate in time out/sign out compared to others* **(Theatre nurse)**

- *Some surgeons are completely open and receptive to the surgical safety checklist and others will completely refuse to be involved and become very cutting and sarcastic when you try to do it without their input. This gives skewered results to the survey I think* **(Anaesthetist technician)**

- *Specialities that are not theatre-based (such as gastroenterology) are not as receptive to using the checklist and sometimes even refuse to do it* **(Anaethestist registrar/fellow)**

- *The only issues we have at this Operating Theatre Department are with locum surgeons and anaesthetists, all other team members are completely engaged* **(Theatre nurse)**

- *There is still a lot of resistance to team participation in surgical safety. In some disciplines I do not feel part of the team and in this I mean I know for a fact that surgeons are not bothered by who the team is. even when introductions are done. They are dismissive and if I asked most of them, they would not have a clue what my name is and I have been here ten years* **(Anaesthetist technician)**

- *There is variability in surgical teams in engagement in the debriefing process. It doesn't seem to be embedded in practice across the board. As an Anaesthetist managing a list it's fantastic to have a debriefing and I always learn something I didn't know or can ask about something I'm not sure about. Phone briefings occur sometimes which are ok but face-to-face is ideal. Some surgeons don't seem to be available for it* **(Consultant anaesthetist)**

2. Briefings and (mainly) debriefings not taking place

- *Nobody does post-list debriefing. I've never participated in this process once. There are many barriers to this. At the end of the list, the anaesthetist has to take the patient to Pacu, and doesn't usually return to theatre. The nurses change over at 4pm, so often the nurses at the end of the last case haven't been present during the list. As soon as the last case is complete, the HCAs come in and start mopping the floor and cleaning the equipment, etc., so there isn't a quiet space to chat. And basically everyone wants to get home* (Consultant Anaesthetist)

- *Debriefs are, in my experience, very rarely carried out. In the one time I have been involved in a debrief, it was so the surgeon could recruit someone to hand on his dissatisfaction with a colleagues attitude. He was very insistent that one of us should give the feedback even though none of us had a problem with the colleague. In fact, he is one of our best workers and like everyone else is not perfect but everyone else accepts his attitude (which is usually great) and works with him* **(Theatre nurse)**

- *Briefings are always held in the morning, though they do not always follow the format of full disclosure. It is very rare that debriefings are done at present but that is in the process of being addressed* **(Other)**

- *Debrief has been the hardest to implement in a meaningful and consistent way here. We are a small unit and issues often go to clinical nurse coordinator without being discussed with the team* **(Other)**

- *Debriefing is not offered at [ ] DHB within the surgical environment. Nurses are the ones who strongly implement and encourage time out* **(Theatre nurse)**

3. Overall process-related

- *5 checklists are too many and teams tend to focus on checklists rather than on patients, 1 or 2 checks maximum are much better for safety* **(Consultant anaesthetist)**

- *Checklists are ok if there are not too many (e.g. checking the patient in 5 times before he enters OT), because then staff is focused on checklists rather then on patients. Patients should be the main focus of care instead of checklists* **(Consultant anaesthetist)**

- *I often feel the surgeons in some specialties do not have ownership of their elective lists. It may be the first time they are meeting the patient on the day of surgery so often are not sure exactly what their plan is or what might be expected. This is partly due to the chaotic elective booking system we have. It is often frustrating for the rest of the surgical team (nurses, anaesthetists, techs) to not be able to know the finalised list until sometimes just the day before. This leads to stress and frustration on the day of surgery which contributes to communication breakdowns and conflict with the surgeons* **(Consultant anaesthetist)**

- *I think the initial timeout where introductions are made need a rethink. It would be better if one member of each team in the OR introduced themselves and their team members so everyone knows the experience, and familiarity with the OR environment so that in times of stress the appropriately experienced team member can be addressed and respond* **(Consultant anaesthetist)**

- *The constant changing of nursing staff and anaesthetists from list to list leads to inefficiency, miscommunication and difficulties in building team relationships* **(Consultant surgeon)**

4. Internal DHB pressures and attitudes, including timeframes

- *Where I work, the speed of turnover is putting pressure on staff to complete all their tasks and help other people complete theirs too in between cases as staffing is so low. Things are being missed such as cleaning effectively and staff being competent in the specialty they are in. We speak up but are still under pressure to get cases done. Staff regularly have little down time to check and prepare thoroughly* **(Anaesthetist technician)**

- *In category 1, high priority cases often there is no time for pre planning* **(Theatre nurse)**

- *The limitation of resources including surgical & anaesthetic equipment in ORs is increasingly a safety concern. The level of care to follow up & deliver the surgical & anaesthetic outcomes is increasingly sub-optimal due to lack of staff on the wards. There are physical bed spaces on many wards but no staff. The rush to push patients through with the staff already overworked is magnified; there is no flexibility to accommodate patient issues when complications or problems develop. On some wards the pressure to discharge patients disregards safety concerns by any or all consultant services* **(Consultant anaesthetist)**

5. Time outs not occurring, being rushed or there being distractions

- *'Time out' seems difficult to conduct perfectly. There always seems to be someone doing something non-essential (like placing drapes or getting equipment ready) while time out is occurring. This is true not only at this workplace, but also at another hospital I work at* **(Consultant surgeon)**

- *'Time out' is pretty ubiquitous now. Surgical buy-in is very variable; some surgeons are very good, and others chat in the scrub room while the Time-out is supposedly being conducted. Often it's the nurses who are trying to drive this, with support from anaesthesia* **(Consultant anaesthetist)**

- *Although the Surgical Safety Checklist is routinely done without exception in [ ] Hospital, I still have a concern over the culture in the way it is implemented. It is common for staff to continue with other activities during sign in, time out and sign out despite the mandated requirement for them to stop what they are doing and fully engage with the SSC. I believe [ ] Hospital main theatres and Day Surgery staff would benefit from some further education on the importance of engaging fully with all stages of the SSC, with an emphasis on the risks around not doing so* **(Consultant anaesthetist)**

- *When auditing is being done, the team perform every part of the surgical safety checklist competently, this is not the same on a consistent basis from day to day. I know of one surgeon who refuses to lead the timeout as he reputes the effectiveness of the checklist* **(Anaesthetist technician)**

- *During the time-out in the operating room I have found that not everyone stops and listens. I feel that although the surgeons do perform the task, it is exactly that, a task. It is not always taken*

seriously, not all components are reviewed and therefore the ramifications of what could occur if something seriously went wrong doesn't seem to register. Nurses, team anaesthesia and surgical team all continue to go about the operation as if nothing has occurred. Nurses will continue passing and receiving suction tubings, anaesthetics will continue to speak/teach their registrars and techs will carry on cleaning items on their trolleys. Secondly the sign-out procedure within the operating room is not always performed, and when it is, is also not listened to by all parties in the OR, more often than not the nurse is talking to thin air and no one responses with any clarification that the surgery performed is the correct one **(Theatre nurse)**

6. Team culture issues

- *I feel I have more of a voice, and respect, due to my seniority. My junior staff are not always listened to, or treated so cordially and deferentially* **(Other)**

- *I have found some particular surgeons are very rude. Few even swear and yell at nurses in the operating room. It is totally against [ ] DHB values. This surgeon does not come to help with positioning of patient and expects nurses to do this. Many complaints has been done but there is no change. I hope one day someone comes into theatre and actually audits how surgeons behave with nurses* **(Theatre nurse)**

- *I would not feel comfortable discussing any issues I have with the consultants in my department, as I would not have support for complaint or would risk taking any action. I do not feel valued or supported in my role and have no illusions that should I have to rely on managerial or department support I would first contact a union* **(Anaesthetist technician)**

- *Medical staff do not conduct themselves appropriately. Bullying belittling behaviour endemic amongst senior clinicians including our leaders* **(Theatre nurse)**

- *Surgeons can be obstructive, rude, condescending and are usually backed by managers when they are challenged about issues. There is a lot of window dressing over speak up, safety, etc. but the reality is keep quiet or you get penalised somewhere along the way in future* **(Anaesthetist technician)**

- *Smaller roles such as Anaesthetic Technicians should have more respect within the operating theatre. They are able to observe a lot, and are a critical part of the team. More often than not they are only respected when things go wrong and they are taking control/participating in resus/emergencies etc.* **(Anaesthetist technician)**

6: Demographic and other variables

The following section provides the key demographic and other variables of the surgical team members who took part in this survey.

Table 22: Surgical services worked in

Surgical services	2019 N=888	2019 %	2017 %	2015 %
General	527	53%	51%	52%
Trauma	364	36%	36%	34%
Orthopaedic	466	47%	46%	42%
Neurosurgery	108	11%	13%	13%
Cardiac	84	8%	7%	8%
Thoracic	86	9%	7%	9%
Vascular	237	24%	23%	22%
Paediatric	245	25%	23%	26%
ENT/ORL*	359	36%	34%	34%
Urology	336	34%	35%	31%
Gynaecology	408	41%	41%	42%
Ambulatory	152	15%	14%	18%
Plastics**	243	24%	20%	-
Opthalmology***	218	22%	28%	-
Other	282	28%	28%	33%

* This was a multiple response question
*ORL added in 2017
** Plastics added in 2017
*** Ophthalmology added in 2017

Table 23: Surgical services worked in most often

Surgical services worked in most often	2019 N=888	2019 %	2017 N=883 %	2015 N=843 %
General	440	45%	45%	43%
Trauma	196	20%	22%	18%
Orthopaedic	391	40%	39%	34%
Neurosurgery	53	5%	7%	5%
Cardiac	70	7%	5%	6%
Thoracic	49	5%	4%	5%
Vascular	86	9%	11%	9%
Paediatric	108	11%	11%	12%
ENT/ORL*	203	21%	19%	19%
Urology	148	15%	17%	13%
Gynaecology	249	25%	27%	25%
Ambulatory	55	6%	6%	9%
Plastics**	135	14%	11%	-
Opthalmology***	95	10%	15%	-
Other	233	24%	20%	26%

* This was a multiple response question
*ORL added in 2017
** Plastics added in 2017
*** Ophthalmology added in 2017

Table 24: Gender

Gender	2019 N=802	2019 %	2017 N=792 %	2015 N=756 %
Male	325	41%	39%	39%
Female	439	55%	56%	57%
I would rather not say	38	5%	5%	4%

Table 25: Ethnicity

Ethnicity	2019 N=795	2019 %	2017 %	2015 %
New Zealand European	442	56%	8%	10%
Māori	11	1%	4%	5%
Pacific peoples	12	2%	1%	1%
Asian	72	9%	2%	2%
Asian Indian	32	4%	56%	52%
Other European	98	12%	14%	13%
Other	55	7%	5%	7%
I would rather not say	73	9%	8%	10%

Table 26: Primary professional role

Primary professional role	2019 N=799	2019 %	2017 %	2015 %
Consultant Surgeon***	143	18%	12%	8%
Surgical registrar/fellow****	57	7%	4%	21%
Consultant Anaesthetist**	177	22%	18%	-
Anaethestist registrar/fellow*	22	3%	18%	17%
Anaesthetist Technician	95	12%	6%	-
Theatre Nurse	229	29%	35%	36%
Other - please tell us what	76	10%	8%	10%

*Registrar/Fellow added in 2017
**Consultant Anaesthetist added in 2017
***Consultant added in 2017
****Surgical Registrar/Fellow added in 2017

Table 27: Number of years worked in this role at any hospital

Primary professional role	2019 N=799	2019 %	2017 %	2015 %
Less than 1 year	56	7%	7%	8%
Between 1 and 5 years	193	24%	21%	26%
Between 6 and 10 years	148	19%	22%	21%
More than 10 years	402	50%	49%	45%

Appendix 1: All results

	Negative or Neutral Response (1-4)		Agree (5-6)		Strongly Agree (7)	
	n	%	n	%	n	%
Surgical team members are open to changes that improve patient safety, even if it means slowing down (n=888)	308	35.0	422	48.0	158	18.0
The 'Time Out' is used in every case by every surgical team (n=886)	72	8.0	314	36.0	500	56.0
The 'Time Out' was difficult to implement (n=878)	630	72.0	199	23.0	49	6.0
Surgical team members all agree on the importance of using checklists in surgery (n=879)	217	25.0	420	48.0	242	28.0
Interest in checklist implementation is limited to one profession e.g. surgery, anaesthesia or nursing (n=879)	695	79.0	126	14.0	58	7.0
Team discussions (e.g. briefings or debriefings) are common (n=843)	151	18.0	362	43.0	330	39.0
Surgical team members make sure their comments or instructions are heard (n=838)	185	22.0	501	60.0	152	18.0
Surgical team members share key information as it becomes available (n=841)	190	23.0	494	59.0	157	19.0
Surgical team members appear eager to help one another (n=820)	135	17.0	524	64.0	161	20.0
Physicians and nurses work together as a well-coordinated team (n=818)	136	17.0	534	65.0	148	18.0
Surgeons and anaesthesia providers work together as a well-coordinated team (n=817)	135	17.0	509	62.0	173	21.0
Surgical team members from different disciplines always discuss patients' conditions and the progress of operations (n=836)	381	46.0	372	45.0	83	10.0
Plans for patient care are adapted as needed (n=804)	76	9.0	490	61.0	238	30.0
Surgical team members communicate with me in a respectful manner (n=836)	147	18.0	476	57.0	213	26.0
My input about patient care is well received by other surgical team members (n=834)	122	15.0	522	63.0	190	23.0
I am always treated as a valuable member of the surgical team (n=814)	157	19.0	472	58.0	185	23.0
Potential errors or mistakes are pointed out without raised voices or condescending remarks (n=834)	228	27.0	476	57.0	130	16.0
It is difficult to discuss medical mistakes (n=827)	556	67.0	229	28.0	42	5.0
Surgical team members appear to struggle and do not ask one another for help (n=818)	696	85.0	106	13.0	16	2.0
It is difficult to speak up when I perceive problems with patient care (n=837)	684	82.0	124	15.0	29	4.0
Physicians are only open to suggestions from other physicians (n=832)	584	70.0	212	26.0	36	4.0
Physicians are present and actively participating in patient care prior to skin incision (n=799)	218	27.0	402	50.0	179	22.0
Physicians maintain a positive tone throughout operations (n=829)	379	46.0	400	48.0	50	6.0
Surgical team members refer to each other by role instead of name e.g. "Nurse" instead of "Anna" (n=834)	731	88.0	72	9.0	31	4.0
Surgical teams always discuss the operative plan (i.e. more than the location of the incision and name of the procedure) before incision (n=802)	224	28.0	409	51.0	169	21.0
For complex patients or cases, preoperative briefings always include planning for potential problems (n=783)	134	17.0	373	48.0	276	35.0
Postoperative debriefings always include a discussion of key concerns for patient recovery and post-op management (n=773)	237	31.0	352	46.0	184	24.0
Equipment issues or other problems discussed in post-op debriefings are addressed in a timely manner (n=759)	298	39.0	322	42.0	139	18.0
I would feel safe being treated as a patient (n=879)	140	16.0	462	53.0	277	32.0
If I were having an operation, I would want a surgical safety checklist to be used (n=886)	31	4.0	130	15.0	725	82.0
Pressure to move quickly from case to case gets in the way of patient safety (n=883)	578	66.0	206	23.0	99	11.0
I am encouraged to report any patient safety concerns I may have (n=886)	165	19.0	375	42.0	346	39.0
Communication breakdowns frequently lead to delays in starting surgical procedures (n=838)	428	51.0	265	32.0	145	17.0
Disagreements are resolved with an emphasis not on who is right but what is right for the patient (n=802)	200	25.0	468	58.0	134	17.0
Decision-making is shared among disciplines in response to changes in patients' conditions or issues that arise during operations (n=800)	136	17.0	502	63.0	162	20.0

Appendix 2: Survey instrument

Health Quality & Safety Commission
Surgical Culture Safety Survey
2019

Survey introduction email: brief description, assurance of anonymity, time to complete, prize draw details and technical issues contact details.

A: Which of the following DHBs are you currently working for?

Northland	
Auckland	
Waitematā	
Counties Manukau	
Waikato	
Bay of Plenty	
Lakes	
Tairāwhiti	
Hawke's Bay	
Taranaki	
Whanganui	
MidCentral	
Capital & Coast	
Hutt Valley	
Wairarapa	
Nelson Marlborough	
West Coast	
Canterbury	
South Canterbury	
Southern	

B: In which surgical service(s) do you work? **(Please select all that apply)**

General	
Trauma	
Orthopaedic	
Neurosurgery	
Cardiac	
Thoracic	
Vascular	
Paediatric	
ENT/ORL	
Urology	
Gynaecology	
Ambulatory	
Plastics	
Ophthalmology	
Other – please tell us which	

C: In which surgical service(s) do you work most often? **(Please select all that apply)**

General	
Trauma	
Orthopaedic	
Neurosurgery	
Cardiac	

Thoracic	
Vascular	
Paediatric	
ENT/ORL	
Urology	
Gynaecology	
Ambulatory	
Plastics	
Ophthalmology	
Other – please tell us which	

We are interested in the extent to which you disagree or agree with the following. Please use a scale from 1-7, where 1 means strongly disagree and 7 means strongly agree.

The first set of questons is about patient safety and surgical safety checklist implementation. Two questions are specifically about the 'time out' part of the checklist, which is done just before knife to skin.

In the operating theatres where I work …	**Strongly disagree**						**Strongly agree**
1. Surgical team members are open to changes that improve patient safety, even if it means slowing down.	①	②	③	④	⑤	⑥	⑦
2. The "Time Out" is used in every case by every surgical team.	①	②	③	④	⑤	⑥	⑦
3. The "Time Out" was difficult to implement.	①	②	③	④	⑤	⑥	⑦
4. Surgical team members all agree on the importance of using checklists in surgery.	①	②	③	④	⑤	⑥	⑦
5. Interest in checklist implementation is limited to one profession (e.g., surgery, anaesthesia, or nursing).	①	②	③	④	⑤	⑥	⑦
6. I am encouraged to report any patient safety concerns I may have.	①	②	③	④	⑤	⑥	⑦
7. Pressure to move quickly from case to case gets in the way of patient safety.	①	②	③	④	⑤	⑥	⑦
8. I would feel safe being treated as a patient.	①	②	③	④	⑤	⑥	⑦
9. If I were having an operation, I would want a surgical safety checklist to be used.	①	②	③	④	⑤	⑥	⑦

The next set of questions is about communication.

In the operating theatres where I work …	**Strongly disagree**						**Strongly agree**
10. Team discussions (e.g., briefings or debriefings) are common.	①	②	③	④	⑤	⑥	⑦
11. Communication breakdowns frequently lead to delays in starting surgical procedures.	①	②	③	④	⑤	⑥	⑦
12. Surgical team members make sure their comments or instructions are heard.	①	②	③	④	⑤	⑥	⑦
13. Surgical team members share key information as it becomes available.	①	②	③	④	⑤	⑥	⑦
14. Surgical team members from different disciplines always discuss patients' conditions and the progress of operations.	①	②	③	④	⑤	⑥	⑦
15. Physicians are only open to suggestions from other physicians.	①	②	③	④	⑤	⑥	⑦
16. Physicians maintain a positive tone throughout operations.	①	②	③	④	⑤	⑥	⑦
17 It is difficult to speak up when I perceive problems with patient care.	①	②	③	④	⑤	⑥	⑦
18. Surgical team members communicate with me in a respectful manner.	①	②	③	④	⑤	⑥	⑦
19. My input about patient care is well received by other surgical team members.	①	②	③	④	⑤	⑥	⑦
20. Potential errors or mistakes are pointed out without raised voices or condescending remarks.	①	②	③	④	⑤	⑥	⑦
21 It is difficult to discuss medical mistakes.	①	②	③	④	⑤	⑥	⑦
22. Surgical team members refer to each other by role instead of name (e.g., "Nurse" instead of "Anna").	①	②	③	④	⑤	⑥	⑦

The next set of questions is about teamwork.

In the operating theatres where I work …	Strongly disagree						Strongly agree
23. Surgical team members appear eager to help one another.	①	②	③	④	⑤	⑥	⑦
24. Physicians and nurses work together as a well-coordinated team.	①	②	③	④	⑤	⑥	⑦
25. Surgeons and anaesthesia providers work together as a well-coordinated team.	①	②	③	④	⑤	⑥	⑦
26. I am always treated as a valuable member of the surgical team.	①	②	③	④	⑤	⑥	⑦
27 Surgical team members appear to struggle and do not ask one another for help.	①	②	③	④	⑤	⑥	⑦

The next set of questions is about patient care.

In the operating theatres where I work …	Strongly disagree						Strongly agree
28. Plans for patient care are adapted as needed.	①	②	③	④	⑤	⑥	⑦
29. Disagreements are resolved with an emphasis not on who is right but what is right for the patient.	①	②	③	④	⑤	⑥	⑦
30 Decision-making is shared among disciplines in response to changes in patients' conditions or issues that arise during operations.	①	②	③	④	⑤	⑥	⑦
31. Physicians are present and actively participating in patient care prior to skin incision.	①	②	③	④	⑤	⑥	⑦

The next set of questions is about planning, briefings and debriefings.

In the operating theatres where I work …	Strongly disagree						Strongly agree
32. Surgical teams always discuss the operative plan (i.e., more than the location of the incision and name of the procedure) before incision.	①	②	③	④	⑤	⑥	⑦
33. For complex patients or cases, preoperative briefings always include planning for potential problems.	①	②	③	④	⑤	⑥	⑦
34. Postoperative debriefings always include a discussion of key concerns for patient recovery and post-op management.	①	②	③	④	⑤	⑥	⑦
35. Equipment issues or other problems discussed in postoperative debriefings are addressed in a timely manner.	①	②	③	④	⑤	⑥	⑦

Q.36 Do you have any feedback or comments about any of the topics covered in this survey?

Text box for open-ended response

The final set of questions will help us understand a little more about who answered this survey.

A: Are you:

Male	
Female	
I would rather not say	

B: What is your primary professional role?

Consultant surgeon	
Surgical registrar/fellow	
Consultant anaethestist	
Anaethestist registrar/fellow	
Anaesthetist technician	
Theatre nurse	
Other – please tell us what	

C: How many years have you worked in this role at any hospital?

Less than one year	
Between 1 and 5 years	
Between 6 and 10 years	
More than 10 years	

D: Which of the following best describes your ethnicity?

New Zealand European	
Māori	
Pacific peoples	
Asian	
Asian Indian	
Other European	
Other – please tell us which ethnicity you most identify with	

Thank you for your time, it is much appreciated.
If you would like to enter the prize draw, please enter your name and a contact phone number or email address.